

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (previously presented) A method for estimating data received from a plurality of data signals in a code division multiple access communication system, the data signals transmitted in a shared spectrum at substantially a same time, the method comprising:

receiving and sampling a combined signal of the transmitted data signals over the shared spectrum;

estimating a channel response for the transmitted data signals; and

estimating data of the data signals using the samples, the estimated channel response and a Fourier Transform based data estimation approach and iteratively reducing an error in the data estimation introduced from a circulant approximation used in the Fourier Transform based approach.

2. (previously presented) The method of claim 1 wherein the Fourier Transform based data estimation approach is a Fast Fourier Transform based data estimation approach.

3. (previously presented) The method of claim 1 wherein the Fourier

Transform based data estimation approach uses a single user detection based data estimation approach.

4. (previously presented) The method of claim 1 wherein the Fourier Transform based data estimation approach uses a multiuser detection based data estimation approach.

5-11. (cancelled)

12. (previously presented) A receiver for use in a code division multiple access communication system, the receiver comprising:

an antenna for receiving a combined signal of transmitted data signals, the transmitted data signals transmitted in a shared spectrum at substantially a same time;

a sampling device for estimating a channel response for the transmitted data signals;

a data estimation device for estimating data of the transmitted data signals using the samples, the estimated channel response and a Fourier Transform based data estimation approach; and

an error correction device for reducing an error in the data estimation introduced from a circulant approximation in the Fourier Transform based data estimation approach.

13. (previously presented) The receiver of claim 12 wherein the Fourier Transform based data estimation approach is a Fast Fourier Transform based data estimation approach.

14. (Original) The receiver of claim 12 wherein the error correction device iteratively reduces the error in the data estimation.

15. (Original) The receiver of claim 12 wherein the error correction device is selectively utilized to reduce the error in the data estimation.

16. (Original) The receiver of claim 12 wherein the error correction device reduces the error by determining an error correction term using a difference between an unapproximated matrix and a circulant approximated matrix used by the data estimation device and a first estimate output by the data estimation device, and adding the error correction term to the first estimate as a next estimate.

17. (Original) The receiver of claim 16 wherein the error correction device iteratively produces subsequent estimates using the next estimate.

18. (Original) The receiver of claim 17 wherein the iteratively producing subsequent estimates is performed a fixed number of times.

19. (Original) The receiver of claim 17 wherein the iteratively producing subsequent estimates is performed until a difference between a last two of the subsequent estimates is a 0 vector.

20. (Original) The receiver of claim 17 wherein the iteratively producing subsequent estimates is performed until a difference between a last two of the subsequent estimates is less than a threshold value.

21. (previously presented) A receiver for use in a code division multiple access communication system, the receiver comprising:

means for receiving a combined signal of transmitted data signals, the transmitted data signals transmitted in a shared spectrum at substantially a same time;

means for estimating a channel response for the transmitted data signals;

means for estimating data of the transmitted data signals using the samples, the estimated channel response and a Fourier Transform based data estimation approach; and

means for reducing an error in the data estimation introduced from a circulant approximation in the Fourier Transform based data estimation approach.

22. (previously presented) The receiver of claim 21 wherein the Fourier Transform based data estimation approach is a Fast Fourier Transform based data estimation approach.

23. (Original) The receiver of claim 21 wherein the error reducing means iteratively reduces the error in the data estimation.

24. (Original) The receiver of claim 21 wherein the error reducing means reduces the error by determining an error correction term using a difference between an unapproximated matrix and a circulant approximated matrix used by the data estimation device and a first estimate output by the data estimation device, and adding the error correction term to the first estimate as a next estimate.

25. (Original) The receiver of claim 24 wherein the error reducing means iteratively produces subsequent estimates using the next estimate.

26. (Original) The receiver of claim 25 wherein the iteratively producing subsequent estimates is performed a fixed number of times.

27. (Original) The receiver of claim 25 wherein the iteratively producing subsequent estimates is performed until a difference between a last two of the subsequent estimates is a 0 vector.